

BEFORE THE  
**Federal Communications Commission**

WASHINGTON, D. C. 20554

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**APR 15 1993**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
 )  
Rulemaking To Amend Part 1 )  
and Part 21 of the Commission's )  
Rules to Redesignate the 27.5- )  
29.5 GHZ Frequency Band and to )  
Establish Rules and Policies for )  
Local Multipoint Distribution Service )

CC Docket No. 92-297

To: The Commission

**REPLY COMMENTS OF  
GHZ EQUIPMENT COMPANY**

GHZ Equipment Company ("GEC") hereby submits its reply  
comments in the captioned rulemaking proceeding.

**I. Technical Issues**

In its opening Comments, GEC urged the Commission to allow  
sufficient flexibility in its technical rules to permit creative  
service offerings by licensees and to allow for rapid technical  
progress, particularly in the area of digital transmission. In  
particular, GEC recommended that the Commission not require an  
applicant's polarization and modulation schemes to be irrevocably  
fixed in its application. Comments of GEC at 2. For this  
reason, GEC applauds Suite 12 Group's vision of the LMDS  
technology as "a multifunction transport system using various  
modulation techniques including, but not limited to, FM and  
digital." Comments of Suite 12 Group at 5.

**A. Suite 12 Group's "Orthogonal Polarization"**

flexibility in the new rules. While advocating leeway for a licensee to configure its system according to the specific service it plans, Suite 12 Group nevertheless would have the new rules require the "orthogonal polarization" scheme which is characteristic of Suite 12 Group's particular technical approach. See, e.g., Comments of Suite 12 Group at Paragraphs 9, 40. The purported rationale for this position, reiterated throughout Suite 12's Comments, is that "orthogonal polarization isolation techniques" are required to avoid adjacent cell interference, *Id.* at 2.

"Orthogonal polarization" is not required and should not be incorporated into the LMDS technical rules, as is evident from the following illustration. Suppose that, in the first cell, a broadcast signal is being transmitted with horizontal polarization and a telephony signal is being transmitted with vertical polarization. With respect to the second cell, Suite 12's position is that these polarities must be reversed, i.e., the telephony signal must be transmitted horizontally and the broadcast signal must be transmitted vertically. But this means that in adjacent cells the system is transmitting in both polarities: That is to say, there is no isolation between the cells. In other words, changing the polarity has not changed anything crucial to the compatibility of the intercell transmissions. To be sure, factors which do affect this compatibility must be in play -- such as selection of frequencies and the directivity of the receive antennas -- but orthogonal

polarization is not one of them. Indeed, at Page 7 of its Comments, Suite 12 Group implicitly contradicts its own basic premise on this score when it states that the 28 GHz band may be used for any video or telecommunications service "on either or both the vertical and horizontal polarization planes of the assigned frequency" within each cell.

Suite 12 Group's rationale for urging the Commission to codify the requirement of orthogonal polarization is certainly understandable, inasmuch as it would require that all 28 GHz aspirants purchase from Suite 12 Group the rights to use its patented "cellularvision" technology. This would result in significant economic benefit to Suite 12 Group and some 28 GHz applicants may wish to employ Suite 12 Group's system design. But use of that design is not, for any technical reason, necessary, and it would be a terrible blunder were the FCC to embrace in the new rules the assumption that it is a technical predicate of any new 28 GHz service. Notably, the equipment being developed by David Sarnoff Research Center for GEC will not require this sort of configuration.<sup>1</sup> A much more prudent approach, recommended by GEC in its initial Comments, is to leave

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<sup>1</sup> For this reason, the FCC's description in Paragraph 20 of the NPRM of Suite 12's "patented technology" as "the only equipment which appears capable of providing direct customer service in the 28 GHz band" is simply not accurate. The equipment developed and manufactured by GEC, which will not rely on the "orthogonal polarization" technique, is equally workable. For the Commission to impose the "orthogonal polarization" requirement on the new rules would be to anoint Suite 12 Group an FCC-endowed monopoly. The very articulation of that prospect requires that it be disavowed by the Commission.

the determination as to polarization and modulation schemes to the individual licensee, who will be best-positioned to decide how to proceed based on its own service plans. It is wholly conceivable that, as technological developments continue, a licensee may forego vertical and horizontal polarity schemes altogether, in favor of an approach more optimally suited to its system design and function. Given the continual innovation we are witnessing in this area, GEC believes that the restriction in the technical rules urged by Suite 12 Group will only stand in the way of technological developments over time.

#### B. Miscellaneous Technical Issues

At Paragraph 10 of its Comments, Suite 12 Group recommends that each 28 GHz licensee in one band be permitted to utilize the other licensee's spectrum for its point-to-point microwave backbone system, provided no harmful interference results. We do not question this as one viable approach, among others. But there are other ways to accomplish the same objective. To build this "proposed sharing system" into the new rules would appear to be an unnecessary complication in the licensing process.

In the NPRM, the Commission floated the prospect of licensing less than a full 1,000 MHz complement of spectrum to individual applicants. GEC argued against that idea in its Comments and agrees wholeheartedly with Suite 12 Group that under no circumstances should a licensee's spectrum usage be limited to less than 1,000 MHz. Effective competition to cable, one of the immediate virtues of LMDS, would be stymied at the

onset if the Commission were to adopt such an approach. See  
Comments of Suite 12 Group at 14, n. 20.

With respect to Ka-Band sharing issues, GEC fully endorses  
the analysis set forth by Suite 12 Group at Pages 16 - 23 of its  
Comments. Likewise, Suite 12 Group's analyses of the  
implications of the NASA ACTS and Motorola Iridium projects very  
adequately allay any concern that the expeditious development of  
LMDS conflicts with these other enterprises. It should be  
clarified, however, that NASA is not proposing horizon to horizon  
transmissions; thus any interference concerns relate strictly to

or refining the RF unit to be frequency selective, to address the issue satisfactorily in the event the FCC is concerned on this score.

**II. Suite 12 Group Should Receive A Pioneer's Preference For Los Angeles.**

In GEC's view, there is no question but that Suite 12 Group's activities warrant a pioneer's preference in Los Angeles, notwithstanding Hye Crest Management, Inc.'s New York City authorization. We believe the rationale set forth by Suite 12

to the public, however, administrative expediency should not be the pivotal consideration. For the reasons set forth in our Comments, the MSA/RSA concept is preferable.

In a related connection, the majority of commenters addressing the matter opposed the Commission's proposal to require that LMDS systems be built out to ninety percent capacity within three years. We strongly urge the FCC to adopt a more realistic build out requirement. In its Comments, GEC argued that twenty-five percent build out within three years is a more practical approach. In no event should the FCC adopt a requirement exceeding fifty percent.

**IV. A "Firm Financial Commitment" Is The Proper Financial Standard.**

GEC and a number of commenters have endorsed the "firm financial commitment" approach proposed in the NPRM as a hedge against the abuses available when an applicant is required only to certify reasonable assurance of financing. At the same time, however, GEC disagrees with the recommendations of several commenters, including GTE and U.S. West, that the financial showings must be even greater than proposed in the NPRM. The requirements of performance bonds and funds on hand would effectively preclude from the industry large numbers of bona fide but more modest entrants -- with no net benefit to the public. Indeed, the only beneficiaries of such stringent financial requirements would be the very large companies who already

possess enormous borrowing power. Because this proposal is transparently self-serving, it should be rejected.

Equally self-serving is the recommendation of GTE that programming commitments should be in place at the time an LMDS application is filed. Only entities the likes of GTE would have the financial wherewithal to acquire programming commitments at that early juncture. Again, such a requirement is plainly not necessary to ensure that LMDS systems operate in the public interest. The proposal should be rejected.

Not surprisingly, several telephone companies and other large firms favor auctioning the 28 GHz spectrum. GEC and others urged in their comments what should be self evident: Auctions benefit large companies and hurt smaller firms which may otherwise, through their own innovation, make significant contributions to the development of the LMDS industry. Particularly given the wide-open nature of the LMDS concept, whose potential applications are virtually unprecedented, it would be a grave disservice to the public were the Commission to opt for a licensing scheme which limited 28 GHz aspirants to a relative handful of deep-pocketed corporations.

In a related connection, GEC strongly endorses the suggestion of some commenters that the new rules should encourage cooperation between commercial and educational users of the 28 GHz spectrum. GEC is convinced that LMDS offers unprecedented opportunities for educators in the field of distance learning.



We urge the Commission to structure its rules in such a way that the needs of educators are adequately met.

**V. The Commission Should Reconsider Its Wholesale Denial Of All Previously Filed Waiver Applications.**

GEC opposes the position of the Wireless Cable Association that no previously filed waiver applications, denied in an Order associated with the NPRM, should be reinstated. The FCC has an affirmative duty to reconsider and, where compelling circumstances are presented, to grant waiver requests. Under well established precedent the Commission simply has no choice on this score: It must explain why a given waiver request has been denied. Because the FCC failed to do this in the original Order, reconsideration is necessary.

**VI. Conclusion**

LMDS holds tremendous promise for bringing innovative technologies to the public in very short order. Crucial to the rapid deployment of the variety of new services which will result from the FCC's establishment of LMDS is that the technical rules be flexible enough to accommodate alternative technologies. Unnecessary restrictions at this juncture will only stymie the growth of the LMDS industry. Incorporating this flexibility, as well as other features recommended in GEC's Comments, will

facilitate the development of this industry and should be adopted quickly.

Respectfully submitted,

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